CLAIMS

What is claimed is:

1. A method for performing state based ingress packet selection for a packet processing system in a network processor, comprising the steps of:

(a) assigning a set of message classes to a semaphore, wherein the set of message classes is associated with a state of an application;

(b) receiving a message;

(c) determining if the message belongs to a message class in the set of message classes; and

(d) waking the application by the semaphore if the message belongs to the message class in the set of message classes.

2. The method of claim 1, wherein the assigning step (a) further comprises:

(a1) blocking the semaphore by the application.

3. The method of claim 2, wherein the determining step (c) further comprises:

(c1) signaling the blocked semaphore, if the message belongs to the message class in the set of message classes.

4. The method of claim 3, wherein the waking step (d) comprises:

(d1) waking the application by the signaled semaphore.

5. The method of claim 1, further comprising:

(e) processing the message by the awakened application.

6. A method for performing state based ingress packet selection for a packet processing system in a network processor, comprising the steps of:

(a) assigning each set of message classes to one of a plurality of semaphore, wherein each set of message classes is associated with one of a plurality of states of an application;

(b) blocking one of the plurality of semaphores by the application based on a current state of the application, wherein the blocked semaphore is assigned to the set of message classes associated with the current state of the application;

(c) receiving a message;

(d) determining the message class to which the message belongs; and

(e) signaling the blocked semaphore, if the message belongs to the set of message classes assigned to the blocked semaphore; and

(f) waking the application by the signaled semaphore.

7. A computer readable medium with program instructions for performing state based ingress packet selection for a packet processing system in a network processor, comprising the instructions for:

(a) assigning a set of message classes to a semaphore, wherein the set of message classes is associated with a state of an application;

(b) receiving a message;

(c) determining if the message belongs to a message class in the set of message classes; and

(d) waking the application by the semaphore if the message belongs to the message class in the set of message classes.

8. The medium of claim 7, wherein the assigning instruction (a) further comprises instructions for:

(a1) blocking the semaphore by the application.

9. The medium of claim 8, wherein the determining instruction (c) further comprises instructions for:

(c1) signaling the blocked semaphore, if the message belongs to the message class in the set of message classes.

10. The medium of claim 9, wherein the waking instruction (d) comprises instructions for

(d1) waking the application by the signaled semaphore.

11. The medium of claim 7, further comprising instructions for:

(e) processing the message by the awakened application.

12. A computer readable medium with program instructions for performing state based ingress packet selection for a packet processing system in a network processor, comprising the instructions for:

(a) assigning each set of message classes to one of a plurality of semaphore, wherein each set of message classes is associated with one of a plurality of states of an application;

(b) blocking one of the plurality of semaphores by the application based on a current state of the application, wherein the blocked semaphore is assigned to the set of message classes associated with the current state of the application;

(c) receiving a message;

(d) determining the message class to which the message belongs; and

(e) signaling the blocked semaphore, if the message belongs to the set of message classes assigned to the blocked semaphore; and

(f) waking the application by the signaled semaphore.